

WHAT IS CLAIMED IS:

1. A method for compressing a set of instructions for a node in a adaptive computing machine, the method comprising:

identifying frequently executed instruction in the set of instructions for an information processing device;

inserting an explicit caching instruction in the set of instructions before the identified instruction, wherein the explicit caching instruction associates the identified instruction with at least one index value; and

replacing at least one instance of the frequently executed instruction subsequent to the explicit caching instruction with a compressed instruction referencing the index value.

2. The method of Claim 1, wherein the step of identifying includes identifying a subset from the set of instructions comprising a plurality of instructions.

3. The method of Claim 2, wherein the subset comprises a plurality of consecutive instructions from the set of instructions.

4. The method of Claim 2, wherein the explicit caching instruction directs an information processing device to store the subset of instructions in an instruction storage unit in association with at least one index value.

5. The method of Claim 4, wherein the instruction storage unit has a storage element associated with the index value, such that the subset of instructions stored in the storage element can be retrieved with reference to the index value.

6. The method of Claim 4, wherein the instruction storage unit has a plurality of storage elements, each storage element associated with an index value, and the explicit caching instruction directs an information processing device to store each instruction of the subset of instructions in one of the plurality of storage elements, such that each one of the instructions can be retrieved with reference to the index value associated with the storage element.

7. The method of Claim 2, wherein the subset of instructions is part of an inner loop.

8. The method of Claim 1, wherein the explicit caching instruction directs a node in an adaptive computing machine to store the identified instruction in an instruction storage unit in association with the index value.

9. The method of Claim 8, wherein the instruction storage unit has a storage element associated with the index value, such that an instruction stored in the storage element can be retrieved with reference to the index value.

10. The method of Claim 1, wherein the compressed instruction directs an information processing device to execute the identified instruction associated with the index value.

11. The method of Claim 6, wherein the compressed instruction includes a plurality of references to the index values, each reference to the index values directing an information processing device to execute the instruction stored in the storage element associated with the referenced index value.

12. The method of Claim 11, wherein the plurality of references to the index values are arranged in a sequence indicating the sequence of execution of the associated instructions.

13. A method for executing a set of instructions for an information processing device, the method comprising:
retrieving a primary instruction within the set of instructions from a memory;
storing at least one instruction subsequent to the primary instruction when the primary instruction is an explicit caching instruction; and
retrieving and executing at least one previously stored instruction when the primary instruction is a compressed instruction.

14. The method of Claim 13, wherein the explicit caching instruction stores a subset comprising a plurality of instructions from the set of instructions.

15. The method of Claim 14, wherein the explicit caching instruction stores a subset comprising a plurality of consecutive instructions from the set of instructions.

16. The method of Claim 14, wherein the explicit caching instruction stores the subset of instructions in association with at least one index value.

17. The method of Claim 16, wherein the explicit caching instruction stores each of the subset of instructions in one of a plurality of storage elements, each storage element associated with an index value, such that each one of the instructions can be retrieved with reference to the index value associated with the storage element.

18. The method of Claim 13, wherein the explicit caching instruction stores an instruction in association with the index value.

19. The method of Claim 18, wherein the compressed instruction includes the index value for retrieving and executing the instruction associated with the index value.

20. An adaptive computing machine configured to process information in responses to a set of instructions, the information processing device comprising:

a configuration storage unit adapted to store or retrieve a frequently used configuration;

a sequencer adapted to decode a primary instruction from the set of instructions into a configuration, such that the sequencer is adapted to retrieve the configuration from the configuration storage unit when the primary instruction is a compressed instruction; and

a functional unit adapted to receive the configuration from the sequencer and process information in accordance with the configuration.